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"THE YEAR 2001"

TRENDS FORECAST?

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CITY OF HAMILTON PLANNING DEPARTMENT

DECEMBER 1972

INTRODUCTION

Much of the contents of this brief summary report will be contained in the final technical report of the Hamilton Transportation Strategy Study. The purpose for this report is however, to outline and summarize, in a brief, handy form, the land use implications of the year 2001. It is prepared primarily for use by the Planning Staff as a quick reference to futuristic land use questions.

The contents of this report stem directly from the Hamilton Transportation Strategy Study (1972).

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POPULATION AND ECONOMIC BASE PROJECTIONS

BACKGROUND

Over the past 20 years, population in the Hamilton Region has increased at a fairly substantial rate. Although this growth has tapered off to some degree in the past five years, particularly in the City of Hamilton where the average growth rate was less than 1 per cent, growth in the area as a whole averaged just under 2.5 per cent per annum over this period, down only slightly from the 20-year average rate of 3 per cent.

Industrial employment has kept pace with the area's population increase, growing at an average rate of between 2 and 2.5 per cent over the last decade. The composition of employment, however, has altered significantly. Whereas employment in manufacturing grew by 16 per cent from 1961 to 1971, employment in trade increased 41 per cent, business and personal services increased 56 per cent, and the finance, insurance and real estate sector increased 69 per cent. These figures indicate a shift in relative importance towards the so-called tertiary and quaternary sectors, with manufacturing's share of industrial employment decreasing from 64 per cent in 1961 to 59 per cent in 1971. Assuming these trends continue, we can expect a substantial change in the composition of the area's economic base over the next 30 years.

ONE MILLION POPULATION

Although a range of population and employment is a necessary aspect of forecasts in view of the uncertainty surrounding the future, detailed investigation of related future conditions (in this case, transportation networks) becomes increasingly complex when both high and low forecasts must be considered. Consequently, it was decided that in further analyses, median population for the study area of 1,000,000 persons would be used. No specific year is attached to this median population although it is tacitly assumed that it will fall fairly close to 2001.

The 1,000,000 population, although it is imposed somewhat artificially, has a close relationship between other projections.

COMPARISON OF PROJECTIONS

<u>SOURCE</u>	<u>2001 POPULATION FORECAST</u>
<u>Urban Canada, Problems & Prospects Research</u> <u>Monograph 5, I. Lithwick, 1971 (N-4 Projections)</u>	1,201,000
<u>Ontario Population Projections - B-50, Department</u> <u>of Treasury and Economics, May, 1970</u>	875,000
Larry Smith & Co., prepared for MTARTS, 1965	1,020,000
<u>Housing Market Analysis, City of Hamilton, 1971</u> High	1,125,000
Low	1,013,000
Forecast prepared by KPM & Co., 1970, generally based on Design for Development Concepts	1,065,000

- * Most agencies appear to be in fairly close agreement as to the future population growth within the region, with Lithwick projecting the highest growth rate and the Government of Ontario the lowest.

EMPLOYMENT & PARTICIPATION RATE

In order to determine employment for the year 2001 a combined male and female participation rate for the study area has been assumed to be 47.7 per cent of the total population by 2001. This is consistent with forecasts contained in Lithwicks Urban Canada.

THE STUDY AREA AND TRAFFIC ZONES

The physical area for which the projections were made, consists of Hamilton-Wentworth and Burlington.

A series of steps was taken in order to arrive at a distribution of land use inputs for the year 2001.

- a) Projection for total study area.
- b) Breakdown of total projections into administrative areas (as indicated by existing official plans and policies).
- c) Further breakdown into traffic zones.
- d) Aggregation of traffic zones into any desired geographic unit.

AVAILABILITY OF DATA

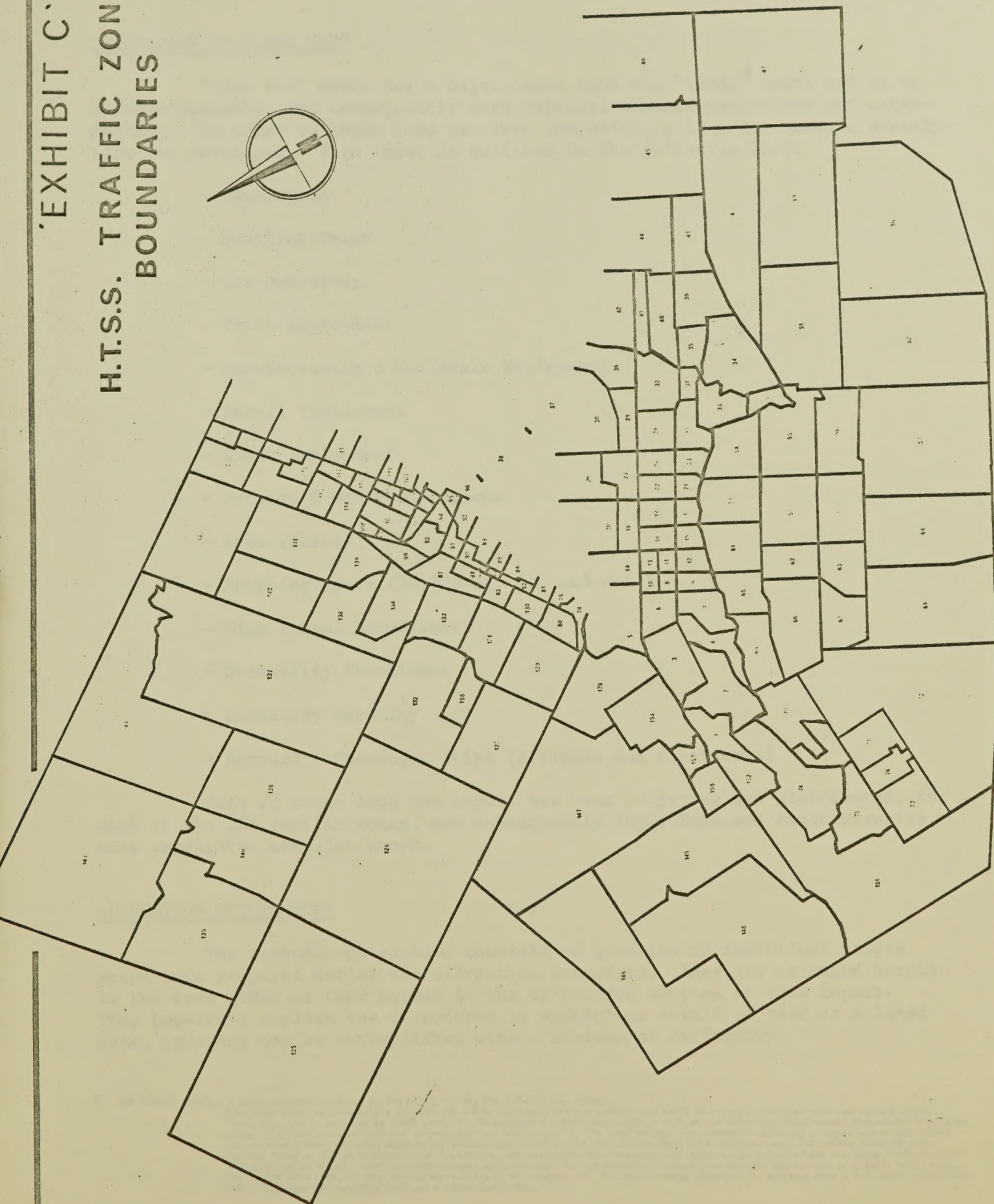
- Year 2001 projected data available for -
- 1) Study Area (total)
 - 2) Administrative Areas (12)
 - 3) Super Zones (28)
 - 4) Traffic Zones (156)

Since most questions concerning future urban needs require answers by administrative area, it is the breakdown by administrative area which is incorporated within this summary report.

Note: For key maps of: Study Area; Administrative Area; Super Zones; and Traffic Zones, see EXHIBIT (A), (B), (C)

- (A) Study Area and Administrative Areas
- (B) Super Zones
- (C) Traffic Zones





DEFINITION OF "LAND USE"

"Land Use" which has a major input into the "TARMS"¹ model had to be machine readable, and consequently mere physical classification was not satisfactory. In order to input land use into the model, a 15 point numeric description was developed. This input is outlined in the following list.

- Population
- Dwelling Units
- Car Ownership
- Total Employment
- Manufacturing & Wholesale Employment
- Retail Employment
- Other Employment
- Service & Other Employment
- Area (acres)
- Shopping Space (50,000 sq. ft. and over)
- High School Enrollment
- University Enrollment
- Dormitory Capacity
- Airport - Passenger Trips (arrivals and departures)

Each of these land use inputs has been projected and distributed, for each of the 156 traffic zones, and subsequently Super Zone and Administrative Area aggregates are also known.

ALLOCATION METHODOLOGY

The methodology section consists of a series of individual papers which were prepared during the allocation procedure. They are arranged herein in the same order as they appear in the definition section of this report. They hopefully explain the procedures in sufficient detail so that at a later date, updating can be accomplished with a minimum of difficulty.

¹ THE "TARMS" MODEL - A computer model designed by the M.T.C. during the M.T.A.R.T.S. Study. The TARMS model is primarily a 24-hour and a P.M. peak hour weekday person trip model of driver, auto passenger and transit modes. Goals that can be achieved by TARMS are: 1. To estimate the inter-municipal as well as the intra-municipal travel demands of the region up to 1990/2000 based on approved or proposed land use plans. 2. To test various transportation planning concepts and provide information needed for long range highway and transit planning. 3. To derive guidelines on a regional basis for making investments in various forms of public transportation facilities, and to examine the feasibility of approved or proposed land use plans from the transportation point of view, and recommend changes as necessary. 4. To evaluate the impact of highway and transit facilities built during the period 1964-1969, as they affect the results of the models. 5. To supply design information, obtained from a P.M. peak period model, for the purpose of designing road and transit facilities.

METHODOLOGY FOR ALLOCATING POPULATION TO TARMS TRAFFIC ZONES

This paper describes the procedure used to allocate population to traffic zones for the TARMS Model, for Concept 'A', the Trends Case.

1. Existing Dwelling Units

The number of dwelling units existing was found from the 1969 TARMS printout. It was considered that this was sufficiently accurate for the purposes required.

2. Surviving Dwelling Units

The number of dwellings to be demolished by 2001 was found, and deducted from the 1969 zone totals, the remainder being the "surviving" dwelling units.

3. Additional Dwelling Units for 2001

The total number of dwelling units required for 2001 was calculated by dividing the population for 2001 by the expected occupancy rate (2.75 ppd for Hamilton and 3.0 ppd for Burlington and other areas). The number of additional dwelling units required was found by deducting the surviving dwelling units from the total dwellings required for each administrative area.

4. Land Available for Development

A 1969 land use map was prepared, and the acreage of residential development was found for each traffic zone. The trends plan was prepared with the advice of local planning offices, and the total residential acreage for 2001, for each zone, was calculated. The land available for new development was the total residential acreage for 2001 less the 1969 residential acreage.

5. Special Areas of Development and Redevelopment

Redevelopment was expected for a few zones, and for these, planning department estimates of the net changes in dwelling units, were applied. Similarly, for areas of new development for which densities were expected to be above average, the planning department's estimates of dwelling units for each zone were applied.

6. New Dwelling Units by 2001

The remaining residential land available for development was found for each zone (that is, the land available for development calculated in (4) less the areas of special development (5).) For each administrative area, the average density (dpa) was multiplied by the land available for development, in each zone, until the required number of additional dwellings were accommodated. (In this case the density is a gross density which, because it relates to the residential land as the Concept 'A' map, includes, roads, schools,

incidental open space, small areas of employment, and miscellaneous uses not included in the other land use categories.) Some of the land zoned as residential for 2001 on the Trends map, was not required.

7. Population by Traffic Zones for 2001

The total dwelling units for each zone was found by summing, the surviving dwelling units, the dwelling units in areas of special development and redevelopment, and the other new dwelling units calculated in (6). The population in each traffic zone was found by multiplying the dwelling units by the occupancy rate.

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METHODOLOGY FOR ALLOCATING CAR OWNERSHIP

In order to project and allocate year 2001 car ownership, the Ministry of Transportation & Communications' (MTC) methodology was used.

This methodology allocates and predicts ownership by factoring the population. The factor by which the population is multiplied by varies as the density of the particular traffic zones.

The relationship is one which decreases ownership as the density increases and visa versa.

RANGE population/acre	FACTOR
0.1 - 10.0	.523
10.1 - 20.0	.519
20.1 - 30.0	.469
30.1 - 40.0	.388
40.1 +	.332

Source: Ministry of Transportation & Communication

METHODOLOGY FOR ALLOCATION OF EMPLOYMENT TO TARMS TRAFFIC ZONES

This paper describes the procedure used to allocate employment to traffic zones for the TARMS Model, for Concept A, the Trends Case.

MANUFACTURING EMPLOYMENT

Includes manufacturing industries, wholesale and construction employment.

Distribution to Administrative Areas

1. 25% of "Trade" projection was taken as wholesale component and added to manufacturing projection.
2. Employment for Stelco and Dofasco was estimated at 34,000 for 2001 (an increase of 14,000).
3. Employment for the remaining area below the mountain (existing in 1969), was held constant for 2001.
4. For rural areas with no industrial land shown on Concept "A" map 1969 employment was maintained (Binbrook, Glanford, Beverley, Waterdown).
5. Remaining employment was allocated to administrative areas in proportion to industrial area.
6. Construction employment was allocated to administrative areas in proportion to the percentage change in population. Added to manufacturing for total manufacturing employment.

Distribution to TARMS Zones

1. Industrial employment in Bay Area of Hamilton was allocated to appropriate zones in proportion to industrial acreage. Increase for Stelco and Dofasco was apportioned on the basis of the area of each company within each zone.
2. Density of industrial development was calculated for each administrative area (excluding Bay Area of Hamilton), and total employment for each zone calculated by multiplying the density by the area of industrial land.
3. Large areas of industrial land on Concept "A" map which are used primarily as railway yards, were excluded from the calculation.

RETAIL EMPLOYMENT

Distribution by Administrative Areas

1. Retail employment was taken as 75% of "Trade" projection. (See paper on Population and Employment Projections).
2. It was assumed that Hamilton will maintain its position as a retail centre for the median date. In 1971 it had approximately 68% of retail employees and 63.5% of population. (i.e. 4.5% extra for 2001 = $46.3 + 4.5 = 50.8\%$).
3. The remaining 49.2% of retail employees were distributed throughout the remaining administrative areas in proportion to the population of each administrative area.

Distribution by TARMS Zones

1. It was assumed that as in 1969 Hamilton had 68% of retail employment but only 63.5% of population, 4.5% of its retail employment could be directly attributed to Hamilton's dominant position as a retail centre. It was assumed that this relationship could be maintained for 2001, and that all of this additional 4.5% employment would be located within the CBD. Employment was allocated to the CBD zones (40, 55, 56, 59, 60, 62, 63) in proportion to the commercial land.

(Retail employment for the CBD resulting from this procedure is added to that derived from the two procedures described below.

2. It was assumed that retail employment is located in two characteristically different areas:
 - in commercial centres: areas marked on the Concept "A" base map for commercial use are considered to be the commercial centres.
 - distributed evenly throughout all areas, but outside commercial centres.

This split was established approximately for 1971 by examination of retail distribution in Hamilton. It was found that about 63% of all retail employment is located within commercial areas and 37% outside commercial areas.

3. It was assumed that this relationship will remain constant for 2001. For each administrative area 37% of retail employment was allocated to TARMS zones, in proportion to the population of each zone.

4. The commercial land for 2001 by each TARMS zone was found from the Concept "A" map (only the relative size of these areas is significant).
5. It was assumed that land will be used more intensively in the CBD's of Hamilton and Burlington than in other areas. To give proper emphasis to CBDs, a weighting of CBD commercial land was assumed, after examination of Floor Area Ratios for the City of Hamilton and estimated employment for the CBD. A weighting relationship of 2:1 was assumed to reflect the relative efficiency of land in the CBD to other areas. Further distinction between designed centre development, strip development and restricted commercial was not made. It was considered that as areas represented on Concept "A" map were only approximate, weightings could not be guaranteed to reflect actual differences. (See Comments on Assumptions).
6. The remaining 63% of retail employment in each administrative area, was distributed amongst TARMS zones in proportion to the weighted areas of commercial land in each zone.
7. The total retail employment for each zone is the total of the values obtained from these three procedures.

SERVICE EMPLOYMENT

Service employment for TARMS is taken to be the following three sectors from the employment projections:

- transportation and utilities
- finance and services
- government and unspecified

Distribution by Administrative Areas

A similar procedure was used as for retail. In 1971 Hamilton had 82% of the regions service employment (i.e. 19% extra). Little is known about the nature of the service industries which are expected to grow substantially in the next 30 years, and in the absence of better information, it was assumed that Hamilton and Burlington would share employment in proportion to their populations (deductions were first made for McMaster University and Mohawk College, and also for hospitals). Hamilton thus received 13.4% and Burlington 5.6%. The total for Hamilton was thus 59.7% of the service employment (46.3 + 13.4).

Distribution by
TARMS Zones

1. It was assumed that the difference in service employment between 59.7% expected in Hamilton, and the 46.3% to which it is entitled by virtue of its population, (i.e. 13.4% of the regional total), would all be located within the CBD, with the exception of certain major employers which provide a regional service and are already located outside the CBD. These were McMaster University, Mohawk College and six hospitals.

The employment for each of these was calculated (see 2), and the total subtracted from the 13.4% of service employment. The remainder was allocated to CBD TARMS zones in proportion to commercial acreages.

2. Maximum employment for McMaster University was established from enquiries.

Mohawk College was assumed to grow in proportion to the population growth. (This will probably result in an under-estimation of growth, but no better information was available).

Hospital employment was established on the basis of five beds per thousand, and 2.5 employees per bed. (Calculations were made separately for Burlington, East Flamborough and Waterdown, for which it was assumed services would be provided in Brant Hospital, Burlington.)

For Hamilton, existing hospital-provision plus growth of McMaster to 2000 employees, was sufficient, and employees were located to existing hospitals in proportion to 1972 employment. For Burlington the additional hospital employment required was located at Brant Hospital.

3. It was assumed that a similar split would occur for services in the use of commercial land, and other land, as for retail employment. The split was established as 33% spread evenly amongst zones and 67% concentrated in commercial areas. It was assumed that this split would remain constant for 2001 as no better information was available.
4. A weighting was established for commercial land to reflect the greater efficiency in the use of gross area. This was derived from an examination of Hamilton and taken as 4:1 more intensive use in the CBD. (This greater intensity of use for service would be expected because of multi-storey development - see Comments and Assumptions.)
5. The remaining 63% of service employment in each administrative area was distributed amongst zones in proportion to the weighted areas of commercial land in each zone. The weighting was applied only to CBD zones in Hamilton and Burlington.
6. The total service employment for each zone is the total of the values obtained from these four procedures.

OTHER EMPLOYMENT

Taken to be entirely agriculture.

Distribution by
Administrative Area

1. The area of agricultural land existing in 2001 was estimated by deducting from the 1966 known acreage, the expected loss to urban development.
2. Employment was allocated in proportion to areas.

Distribution by
TARMS Zones

Employment was distributed to zones in proportion to areas.

COMMENTS ON ASSUMPTIONS

Some of the assumptions included in this procedure have been made on the basis of very little information. Further study would be of considerable benefit, particularly for assumptions relating to intensity of land use and distribution of service and employment.

ALLOCATION OF SHOPPING CENTRES OF 50,000 SQ. FT. AND OVER

In many cases the records show the actual leasable floor space for some of the largest and most important plazas. In those areas when the leasable floor space was not known, actual measurements from site plans enabled the total area to be known. A percentage (25% of total) was then applied to the measured area to derive the leasable floor area.

The percentage was derived at by using two methods, one being subjective, the other objective.

- a) General feeling of those people involved with the type of development.
- b) Actual checks with those areas where the real amount of leasable area is known.
- c) The numbers as they appear in the composite matrix are divided by 1,000.

METHODOLOGY FOR ALLOCATING SECONDARY SCHOOL ENROLLMENT TO TRAFFIC ZONES

High School Enrollment

This category of land use again presents its own set of problems. We have two categories of secondary schools.

- A) Public Secondary Schools
- B) Separate Secondary Schools

"A" is distributed throughout the study area while "B" is located only in Hamilton.

To determine the student population and its distribution, the following steps were taken.

- a) Determine enrollment and location of each school.
- b) Determine enrollment per administrative area.
- c) Determine maximum capacity per school.
- d) Determine maximum capacity per administrative area.
- e) Apply historic enrollment records to historic populations per administrative area.
- f) Discover proportion of total population which attends secondary schools.
- g) Determine amount of reserve capacity per administrative unit.

- h) Apply present trends to the proportion of population enrolled in secondary schools and revise if necessary.
- i) State maximum expected population per administrative area.
- j) Apply (h) to the expected 2001 population to get 2001 enrollment.
- k) Compare capacity figures (d) to expected (j).
- l) Determine how many new spaces will be required per administrative area.
- m) Decision to expand old facilities and/or to build new facilities.
- n) Determine amount of each expansion and at what locations.
- o) Determine size and location of each new facility.

Separate Schools

Separate Schools are presently near or over capacity enrollment.

Although procedure for allocating separate school population is similar to that used for secondary school population, there are variances due to existing Separate School Board policies.

It was indicated by the Separate School Board that one of the old schools will be abandoned, and a minimum of one, probably two, new schools will be constructed on the Mountain.

Projections are also less dependent on historic growth rates due to restricted demand which is created by the nature of separate schools.

Basically, rough anticipated capacities and locations, as were indicated by the Separate School Board, were accepted, thus permitting the allocation of school sites and enrollment on a fairly definite basis.

METHODOLOGY FOR ALLOCATING POST-SECONDARY SCHOOL ENROLLMENT

This particular field as it applies to the study area pertains only to Mohawk Community College. This category is somewhat more difficult to establish than are others.

Problems

- 1.) This College has branch campuses.
 - Location - a) Hamilton Mountain
 - b) Hamilton Lower
 - c) Saltfleet
 - d) Brampton (out of study area)

- 2.) Personal phone interviews with college officials indicate that no official enrollment projections exist. It is also apparent that they were reluctant to make even unofficial projections.
- 3.) The nature of a Community College complicates enrollment figures. The enrollment figures include such categories as: full time, part time, adult retraining, night school and special language classes for immigrants.
- 4.) The demand for post secondary schooling is presently very uncertain. It seems that enrollments may go in two directions. Firstly, it may be statistically speaking, experiencing similar patterns as university enrollment, namely enrollment is dropping, or at least it is not growing to the extent expected; and secondly, enrollment may be advancing faster than expected, if that relative loss which universities are experiencing is picked up by Community Colleges such as Mohawk.
- 5.) Mohawk Community College is a very new school, and as a result data concerning its growth is only available for a very few previous years. As a result it is difficult to look at patterns or trends from which to make projections.

Due to these problems it was necessary to make some very general, yet important assumptions.

- a) Each of the different types of students (listed before) has the same transportation demand characteristics. That is to say that they create the same type of travel patterns - (due to the nature of course scheduling and the existence of 3 campuses, this may not be true).
- b) Since no official projections were made available to the study group, it became necessary to use the most recent known maximum enrollment figure, and arbitrarily assume it to be true in the year 2001. It is realized that this method has much to be desired, and as a result, the figures will be updated at such a time when the data which has been requested from Mohawk College becomes available.
- c) The associated staff and faculty which serves the schools student population is "projected" and distributed in an identical fashion as the faculty of the staff of McMaster University.

METHODOLOGY FOR ALLOCATING UNIVERSITY ENROLLMENT TO TRAFFIC ZONES

By conducting a number of personal phone interviews it was determined that McMaster University, which is the only university in the study area, has definite policies which limit the student enrollment to a maximum of 12,000.

By viewing past enrollment data along with the number of faculty and staff on the payroll for each of the previous years for which this type of data exists it was determined that a distinct statistical relationship exists between the number of enrolled students and associated faculty and staff.

Since the maximum number of students is known, then within statistical limits the associated staff and faculty is also known.

The location and boundaries of the university are well defined, and fall into one traffic zone. Allocation then, is easily accomplished.

METHODOLOGY FOR ALLOCATING DORMITORY SPACE TO TRAFFIC ZONES

The dormitory space category of land use applies only to McMaster University.

Similar to policies which restrict the student population at McMaster there also exist, policies which limit the increase of dormitory space. The policies indicate that no more dormitory space will be built upon the completion of those units which are presently under construction.

As a result the total maximum dormitory space can be easily discovered by simply determining the number of existing units and adding to that figure the total number of units under construction.

Note:

McMaster University will be building "apartment type" units in the future, however the indication is that those units will be spread more evenly around the university site. As a result, presumably those units will be accounted for in the normal dwelling unit projection.

YEAR 2001 LAND USE INTERPRETATION AND INTRODUCTORY NOTE

The "land use" presented herein is commonly referred to as the "trends case". The "trends case" was one of eleven (11) land use distributions which were devised by the H.T.S.S. Each of the eleven distributions dealt with exactly the same projections in terms of total values, however they varied dramatically in their special distribution.

It was the trends case which was initially prepared, to act as a base for other distributions. It is the trends case which has been presumed to be the distribution which is most likely to occur if present policies and non-policies are perpetuated and followed. In other words the trends case allegedly represents a study area when its population reaches 1,000,000. It is also the answer to the question "what happens if nothing happens"?

The accompanying chart (Exhibit E) summarizes the year 2001 land use by administrative area. Each of the inputs was determined individually in accordance with the methodology section of this report. Errors that occur in the total column of Exhibit E, i.e. (slight discrepancy (439) between 1,000,000 target population and the actual derived total, and a discrepancy between projected and derived total employment) are produced by minor allocation problems due to the complex method of distribution of the population and jobs.

Most of the 15 inputs are self explanatory, however two (2) require further explanatory notes:

"Shopping Centres"

That area (in square feet of leasable floor space) contained in shopping centres which have a leasable floor area of 50,000 sq. ft. or more.

"Airport"

The total number of passengers, arrivals and departures, as is predicted by the Ministry of Transportation and Communications.

(Assuming moderate expansion at existing facility)

In order to make comparisons and to get a better feeling for what is implied by the year 2001 "Land Use", a similar land use breakdown for the year 1969 was devised. (Exhibit D). Where data is not available it is signified by N.A. Where data is estimated, it is marked by a symbol as is indicated on the chart.

Note: Although Beverly Twp. is within the study area, it was not sufficiently covered by traffic zones to make detailed projection. (It contains 2 partial zones which cover only a very small percentage of Beverly Twp.s total area). As a result, it is omitted from both Exhibit D & E.

YEAR 1969 "LAND - USE" BY ADMINISTRATIVE AREA 'EXHIBIT D'

ADMINISTRATIVE AREA	HAMILTON TOTAL	HAMILTON (LOWER)	HAMILTON (UPPER)	BURLINGTON	STONE CREEK	SALT FLEET	BINBROOK	GLANFORD	ANCASTER	WEST FLAMBOROUGH	EAST FLAMBOROUGH	DUNDAS	WATERDOWN	TOTAL
POPULATION	302649	209813	92836	81275	7495	18229	1831	3688	12442	8795	5534	15189	2119	459146
DWELLING UNITS	99974	71252	28722	23044	2544	4992	802	937	3606	2216	1527	4155	624	144421
CAR OWNERSHIP	89896	58458	31438	25153	2597	4339	802	1368	4199	3003	1781	4493	936	138567
TOTAL EMPLOYMENT	131443	123699	7744	19821	827	3750	31	205	737	743	571	3596	276	162000
MANUFACTURING & WHOLESALE EMPLOYMENT	73391	73157	234	8798	126	2334	0	45	65	159	216	2171	45	87350
RETAIL EMPLOYMENT	16031	13468	2563	3909	161	254	5	18	123	57	68	991	50	21667
SERVICE EMPLOYMENT	44031	39084	4947	7114	518	1035	26	138	439	409	244	427	170	54551
OTHER EMPLOYMENT	0	0	0	0	22	127	0	4	110	118	43	7	11	442
SERVICE & OTHER EMPLOYMENT	44031	39084	4947	7124	540	1162	26	142	549	527	277	434	181	54993
AREA (ACRES)	31500	19023	12477	56158	484	23369	11261	9710	22481	21445	27302	3795	400	207905
SHOPPING CENTRES	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
HIGH SCHOOL ENROLLMENT	28033	20122	7903	6426	0	2674	0	0	1480	0	0	2155	0	40760
UNIVERSITY ENROLLMENT	10358	8455	1903	0	0	0	0	0	0	0	0	0	0	10358
DORMITORY SPACE	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
AIRPORT	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

SOURCE: Toronto Area Regional Model Study, 1969
Data which is not available is denoted by N.A.

YEAR 2001 "LAND - USE" BY ADMINISTRATIVE AREA 'EXHIBIT E'

ADMINISTRATIVE AREA	HAMILTON TOTAL	HAMILTON (LOWER)	HAMILTON (UPPER)	BURLINGTON	STONEY CREEK	SALT FLEET	BINBROOK	GLAIFORD	AMCASTER	WEST FLAMBOROUGH	EAST FLAMBOROUGH	DUNDAS	WATERLOO	TOTAL
POPULATION	462994	298065	164929	254900	7932	132268	6305	13915	44663	24381	12606	36597	3000	999561
DWELLING UNITS	159392	99411	59981	84980	2644	44088	2102	4638	14902	8127	4202	12129	1000	338204
CAR OWNERSHIP	173686	109713	63973	119489	3722	62063	3272	7223	23180	12654	6543	17170	1557	430559
TOTAL EMPLOYMENT	282065	216612	65453	137516	2976	22331	1196	2292	6271	3626	1777	7803	345	468198
MANUFACTURING & WHOLESALE EMPLOYMENT	82871	75874	6997	33609	126	10539	0	45	454	142	210	3199	45	131240
RETAIL EMPLOYMENT	23375	17297	6078	13372	672	3567	446	790	1371	865	158	1004	300	45920
SERVICE EMPLOYMENT	178568	126190	52378	90499	2178	11516	600	1397	4296	2519	1199	3600	300	296672
OTHER EMPLOYMENT	0	0	0	160	0	189	115	60	150	100	210	0	0	984
SERVICE & OTHER EMPLOYMENT	178568	126190	52378	90762	2178	11705	715	1457	4446	2619	1409	3600	300	297759
AREA (ACRES)	31500	19023	12477	56158	484	23369	11261	9710	22481	21445	27302	3795	400	207905
SHOPPING CENTERS *	3736	1900	1836	1012	0	100	0	0	0	0	0	0	0	4848
HIGH SCHOOL ENROLLMENT	33803	16619	17184	21636	0	8712	0	4666	3333	0	0	4746	800	77696
UNIVERSITY ENROLLMENT	18775	12000	6775	0	0	800	0	0	0	0	0	0	0	19575
DOCKHORY SPACE	2360	2360	0	0	0	0	0	0	0	0	0	0	0	2360
AIRPORT ***	0	0	0	0	0	0	0	3,000,000	0	0	0	0	0	3,000,000

HAMILTON TRANSPORTATION STRATEGY STUDY 1972

* AREA CONTAINED IN SHOPPING CENTRES, WHICH HAVE A LEASABLE FLOOR AREA OF 50,000 SQ. FT. OR MORE /1,000.

** PASSENGER TRIPS DEPARTING AND ARRIVALS

NOTE: FOR MORE DETAILED BREAKDOWN OF DATA BY TRAFFIC ZONES, OR BY ANY OTHER DESIRED AREA REFER TO H.T.S.S. FILE NO. 4245.

WORD OF CAUTION

All too often, projections, especially those which are produced by sophisticated methods are taken too seriously. Furthermore, projections are merely the product of a series of assumptions. They take into account, existing levels, existing rates of change, and historic rates of change. In other words, recent trends are studied and extrapolated. These extrapolations are often used as "tools" for future planning. Admittedly, a case can be made for this approach, as it has been for many long years.

Trends planning, however, may be a mistake. By looking at the future with the present as a core, we may be perpetuating those same problems which have been plaguing urban development, and in fact, we may be almost purposely planning for those mistakes, or at least internalizing them to the point where they become hidden and are renamed, and called inevitable conditions produced by urbanization and development, rather than errors or problems.

The purpose of this statement is to bring attention to the problems which are associated with projections and their distribution. Projections are susceptible to influence by many external factors. The nature and extent of these external forces is unpredictable. However, it is predictable, that over the time horizon for which the projections and distributions are being made, that there will be external intervention. Consequently trends forecasts must be updated periodically.

Projections are presumed to incorporate within them, those variables such as social change, which up to now have eluded quantification.

Only one thing is obvious, and that is that change itself is changing, and accelerating. It may, in itself be becoming a way of life. So we have here a situation where decisions may be made on "quantifiable" trends projections rather than on "dynamic" trends projections. The projections herein then fall in the "quantifiable" trends category.

GP:fg
December, 1972

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